A NEW SPECIES IN THE *POLYCENTROPUS CINEREUS* GROUP (TRICHOPTERA: POLYCENTROPODIDAE) FROM ARKANSAS AND TEXAS[1]

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ABSTRACT: *Polycentropus harpi*, a new species belonging to the *P. cinereus* group, is described and illustrated. The species was collected from the Edwards Plateau physiographic subregion of southcentral Texas and the Ouachita Mountains of Arkansas. This addition brings the total number of species belonging to the *P. cinereus* group to three.

The diversity of caddisflies in Texas is still poorly known despite earlier attempts to document the fauna (Edwards 1973). In order to better understand the species composition and distribution of caddisflies in Texas, a long term study was undertaken to intensively sample all major physiographic subregions in the state. The caddisfly fauna of the Interior Highlands (Ozark and Ouachita Mountains), though better known than Texas (Unzicker *et al.* 1970, Bowles and Mathis 1989, Mathis and Bowles 1992), still needs a thorough analysis of its biogeographic affinities. Current research of the senior author is addressing those needs. In the course of examining recent collections from the Edwards Plateau physiographic subregion of central Texas and the Ouachita Mountains in Arkansas, we have discovered an undescribed species belonging to the *Polycentropus cinereus* group. Herein we describe and illustrate the new species, and discuss its relationship to other members of the group.

Morphological terminology follows that of Hamilton *et al.* (1990). Type material is deposited in the collections of Clemson University (CU), Illinois Natural History Survey (INHS), National Museum of Natural History (NMNH), and the University of North Texas (UNT). All material is preserved in 70% ethanol.

Polycentropus harpi, new species

Male. Length of forewing 4.0-7.0 mm. Thoracic pleura, sterna and legs yellow; nota and dorsum of head darker brown with numerous clear-yellow, erect setae. Forewings covered with a mixture of yellow and brown setae; membranes interspersed with small indistinct pale spots; stigmal region with spots coalesced to form a large pale area (not evident in

[1] Received June 29, 1992. Accepted August 27, 1992.

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material older than one year). Fork 1 of hind wing present; discoidal cell closed. Male genitalia (Figs. 1-4): Abdominal sternite IX (s.IX) in lateral aspect broad basally, tapering dorsally; ventrally concave. Preanal appendages (pre. app.) broad, short and rounded apically. Membranous terga IX and X fused (IX+X). inferior appendage (inf. app.) roughly quadrate in lateral aspect; posterior margin deeply emarginate; dorsomesal processes (dm.pr.) in lateral view acute and projecting posteriorly, their mesal surfaces with two to three clear, stout setae projecting mesally; ventromesal lobes of each inferior appendage broadly rounded with dark, truncate peg-like setae covering the apicodorsal and apicoventral surfaces. Phallobase broad and deeply concave in lateral view; apicodorsal area of phallus membranous; in dorsal aspect, left phallic rod (l. ph. r.) lanceolate and curving

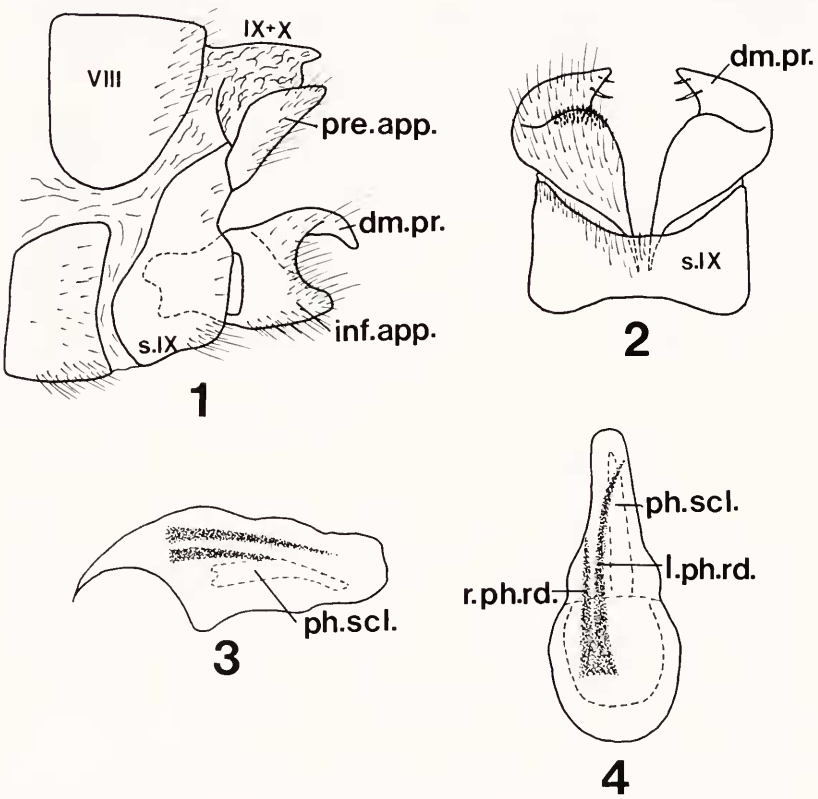

Fig. 1-4. *Polycentropus harpi* n.sp. 1, male genitalia, lateral. 2, sternite IX and inferior appendages, ventral. 3. phallus, lateral. 4, phallus, dorsal. VIII = abdominal segment 8, s.IX = abdominal sternite 9, IX+X = fused, membranous abdominal segments 9 and 10, pre.app. = preanal appendage, inf.app. = inferior appendage, dm.pr. = dorsomesal process, ph.scl. = phallic sclerite, r.ph.rd. = right phallic rod, l.ph.rd. = left phallic rod.

gradually to left; right phallic rod (r. ph. r.) shorter and straight; phallic sclerite (ph. scl.) straight and gradually tapering to a point in dorsal view; in lateral view, phallic sclerite slightly bowed with anterior end emarginate.

Female. Unknown.

Immatures. Unknown.

Material. **Holotype, male:** U.S.A., Texas, Kendall Co., Cibolo Creek below confluence with Ranger Creek, Boerne, 17-III-1992, K. W. Stewart, UV light, (NMNH). **Paratypes.:** same data as holotype, 1 male, (NMNH); same as holotype but 18-IV-1992, D. E. Bowles, 1 male, (INHS); Arkansas: Garland Co., Bear Creek at Camp Clear Fork, 27-IX-1986, D. E. Bowles, 1 male (NMNH); Montgomery Co., Strawn Spring, 0.5 mi E Caddo Gap, 12-IX-1980, H. W. Robison, 4 males, (INHS); same as previous but Jones's Creek at AR Hwy 8, Caddo Gap, 2 males (CU); Fourche Mt., E Mena District Rifle Range, ca. 10 mi NW Mena, 11-VI-1991, B. Ewing, 2 males, (CU); Polk Co., Ewing Farm, 7 mi W Mena, 26-VI-1991, B. Ewing, 2 males, (UNT); same data as previous but 27-VI-1991, 1 male, (NMNH).

Etymology: We name this species in honor of George L. Harp (Arkansas State University) who has made extensive contributions to our understanding of aquatic insects in Arkansas.

DISCUSSION

Polycentropus harpi is most closely related to *P. cinereus* Hagen. It is readily distinguished from the latter by the following combination of male characters: (1) much deeper posterior emargination of the inferior appendage, (2) left dorsal phallic rod curved to the left; this structure is straight in *P. cinereus,* and (3) general convex outline of the dorsomesal processes of the inferior appendages when viewed ventrally; this outline is straight in *P. cinereus. Polycentropus harpi* and *P. cinereus* are easily distinguished from *P. sabulosus* Leonard and Leonard on the basis of the posterior emargination of the inferior appendage. Specimens of *P. harpi* from Arkansas are much smaller than those from Texas and may have the left phallic rod angled more sharply to the left.

The *P. cinereus* group contains two species recorded from North America (Armitage and Hamilton 1990), in addition to *P. harpi.* The nominate species, *P. cinereus,* is transcontinental (Armitage and Hamilton 1990). *Polycentropus sabulosus* is known only from Michigan. *Polycentropus harpi* is known only from the type series. In Texas *P. harpi* has been collected with *P. picana* Ross while in Arkansas it has been collected with *P. centralis* Banks.

ACKNOWLEDGMENTS

We thank D. E. Bowles, B. Ewing, and H. W. Robison for collecting additional specimens of *P. harpi.* M. L. Mathis allowed the senior author to examine material in the University of Arkansas Arthropod Collection. We thank S. W. Hamilton and J. Kennedy for reviewing an early draft of the manuscript. The comments of three anonymous reviewers were appreciated. This study was supported in part by the National Science Foundation (DEB-9200895) and a UNT Faculty Research Grant to KWS.

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Continued from page 34

showed the entire process of silphid beetles burying a mouse carcass and the development of the beetle brood. He also showed how the carrion beetle life cycle could be replicated in the classroom. A related presentation, by Dr. Judith Hough-Goldstein, entitled "Amazing Insects", also used slides to illustrate many basic ideas concerning insects such as body characteristics, major orders, metamorphosis, etc. She also stresses to students that insects can be competitors to humans, and ends her presentation with live insects, including a hissing cockroach. In addition, she brings to the classroom a collection of striking and interesting specimens.

Dr. Elzie McCord Jr., of the Stine Haskell DuPont Labs, presented "Insect Show and Tell". He goes to the classroom to promote insects as interesting, not "yucky", to encourage participation by the students, introduce students to what scientists do and show that scientists can come from diverse backgrounds. He attempts to develop with the students lots of interactions and much exposure to live insects, aptly demonstrated by his talk to the society, and he tries to leave the students with a setup of live insects for their classroom. Dr. Susan Whitney, University of Delaware, in "Bug Out", presented an overview of a wonderful series of lessons she has developed for 6-10 year olds entitled Bug Out. This series incorporates interaction, observation, projects and short lectures to illustrate many aspects of insect biology (available at low cost through North Carolina State University). She ended by having the entire audience participate in a sample lesson of drawing a "mystery" bug and then identifying it; the trick here is that the children receive much information about how an insect is constructed while participating in a fun game. Dr. Harold White, University of Delaware, ended the session with "Aquatic Insects." As an amateur entomologist (he is a biochemistry professor) he stresses this aspect of the science to kids, and sees his presentations as a way to get children interested in science per se, not just entomology. His demonstrations were simple but effective, and relied only on a petri dish, overhead projector and a few live aquatic insects. By simply placing the insects in water in the dish on the projector, locomotion, morphology and respiration of aquatic insects all can be illustrated. He stressed, above all, that the best experience for the kids is to take them outside to a pond!

Over 50 society members, guests and teachers attended this meeting at the University of Delaware.

Jon K. Gelhaus,
Corresponding Secretary